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(FILE 'HOME' ENTERED AT 20:53:42 ON 01 FEB 2008)
FILE 'CA' ENTERED AT 20:54:07 ON 01 FEB 2008
L1 642 S (VALIDAT? OR FAULT OR CORRUPT?) (6A) (SENSOR OR DETECTOR OR ELECTRODE
OR MICROELECTRODE OR BIOSENS? OR BIO SENS? OR ANALY!ER OR
BIOELECTRODE OR BIOANALY!ER OR BIOMICROELECTRODE) (6A) (DETECT? OR
DETERMIN? OR TEST? OR ASSAY? OR MEASUR? OR MONITOR? OR EVALUAT? OR
DISCERN?)
L2 25 S L1 AND (AC OR (ALTERNATING OR A OR OSCILLATING OR MODULAT?) (1W)
(CURRENT OR C) (2A) (IMPED? OR POLAR? OR VOLTAM? OR COMPONENT OR
RESPONSE OR SIGNAL OR POTENT? OR CONDUCT? OR RESISTI?) OR KHZ OR MHZ
OR KILOHERTZ OR MEGAHERTZ OR (KILO OR MEGA) (W) (HERTZ OR HZ) OR
FREQUENCY)
L3 17 S L1 AND (AC OR (ALTERNATING OR A OR OSCILLATING OR MODULAT?) (1W)
(CURRENT OR C) OR KHZ OR MHZ OR KILOHERTZ OR MEGAHERTZ OR (KILO OR
MEGA) (W) (HERTZ OR HZ))
L4 36 S L2-3
L5 24 S L4 AND PY<2004
L6 4 S L4 AND PATENT/DT
FILE 'BIOSIS' ENTERED AT 20:55:42 ON 01 FEB 2008
L7 5 S L5
FILE 'MEDLINE' ENTERED AT 20:56:11 ON 01 FEB 2008
L8 10 S L5
FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 20:57:07 ON 01 FEB 2008
L9 34 DUP REM L5 L6 L7 L8 (9 DUPLICATES REMOVED)

=> d bib,ab 19 1-34

L9 ANSWER 14 OF 34 CA COPYRIGHT 2008 ACS on STN
AN 132:95184 CA
TI Sensor Fault Detection Using Noise Analysis
AU Ying, Chao-Ming; Joseph, Babu
CS Department of Chemical Engineering, Washington University, St. Louis,
MO, 63130, USA
SO Industrial & Engineering Chemistry Research (2000), 39(2), 396-407
AB The feasibility of sensor fault detection using noise anal. is
evaluated. The noise powers at various frequency bands present in the
sensor output are calcd. using power spectrum d. estn. and compared with
historically established noise pattern to identify any abnormalities.
The method is applicable to systems for which the noise is stationary
under normal operating conditions. Principal component anal. (PCA) is
used to reduce the space of secondary variables derived from the power
spectrum. T2 statistics is used to detect deviations from the norm. We
take advantage of the low-pass filtering characteristics exhibited by
most process plants and closed-loop control systems, which allows the
noise power at higher frequency bands to be used in the fault detection.
The algorithm does not require a process model because it focuses on
characterization of each individual sensor and the measurement it
generates. Exptl. studies with two kinds of garden variety sensors (off
the shelf temp. and pressure sensors) are used to validate the
feasibility of the proposed approach.

L9 ANSWER 19 OF 34 CA COPYRIGHT 2008 ACS on STN
AN 128:103928 CA
TI Sensor Fault Detection via Multiscale Analysis and Nonparametric
Statistical Inference
AU Luo, Rongfu; Misra, Manish; Qin, S. Joe; Barton, Randall; Himmelblau,
David M.
CS Department of Chemical Engineering, University of Texas, Austin, TX,
78712, USA
SO Industrial & Engineering Chemistry Research (1998), 37(3), 1024-1032
AB Sensor validation is a topic of widespread importance. A new approach
to sensor validation in real time is described that is based on (1)
representation of the sensor signal by wavelets, (2) decompn. of the
signal into different frequency ranges, (3) calcn. of useful features of
the signal at different frequencies, and (4) diagnosis of faulty
operation via nonparametric statistical tests. The proposed strategy is
able to isolate the effect of noise and process changes from the effects
of phys. changes in the sensor itself. To clarify the circumstances
under which the above strategy could be used, a noisy signal from a
simulated thermocouple in a dynamic continuous nonlinear unsteady state
stirred tank reactor (CSTR) was analyzed. Faults were introduced into
the thermocouple, and the diagnosis was carried out. The results of the
diagnosis indicated that the proposed strategy had low type I (false
alarm) and type II (failure to detect faults) errors and was distinctly
better than a std. test for changes in a nonstationary signal of unknown
characteristics.

L9 ANSWER 33 OF 34 CA COPYRIGHT 2008 ACS on STN
AN 77:85298 CA
OREF 77:14057a,14060a
TI Fault sensing instrumentation
IN Blackmer, David E.
PA Instrumentation Laboratory, Inc.
SO U.S., 7 pp.
PI US 3661748 A 19720509 US 1970-27197 19700407
PRAI US 1970-27197 A 19700407
AB The electrochem. sensor system (to sense pH, pO₂, and pCO₂ values in
blood samples) includes an electrode system for disposition in a
conducting fluid that is arranged to produce a dc signal as a function
of a parameter of interest sensed by the electrode system. There is dc
circuitry responsive to the dc signal from the electrode system for
producing an output indicative of the parameter of interest sensed by
the electrode system. The system for detecting a sensor fault consists
of a means for providing an elec. connection to the conducting fluid,
means to apply an ac signal to the elec. connection, an ac signal
detector connected to the dc circuitry, and a threshold circuit
responsive to the output of the ac signal detector for providing an
output signal indicative of a fault in the electrochem. sensor system
when the ac signal detector has an output that differs by a predetd.
amt. from a normal value.